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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,356	03/19/2004	Chul Hong Park	10031558-1	9213

7590 06/20/2005

AGILENT TECHNOLOGIES, INC.  
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Intellectual Property Administration  
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EXAMINER

GLENN, KIMBERLY E

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/804,356

Applicant(s)

PARK, CHUL HONG

Examiner

Kimberly E. Glenn

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/19/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 7 is objected to because of the following informalities: Claim 7 depends upon itself. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 10, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Examiner is unclear what applicant means by the limitation recited in claims 3, 10 and 17. Does applicant intend for the limitation to mean a varactor having a plurality of stacked ferroelectric layers or does applicant intend for the limitation to mean a plurality of stacked varactors?

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of stacked ferroelectric varactors connected in series must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

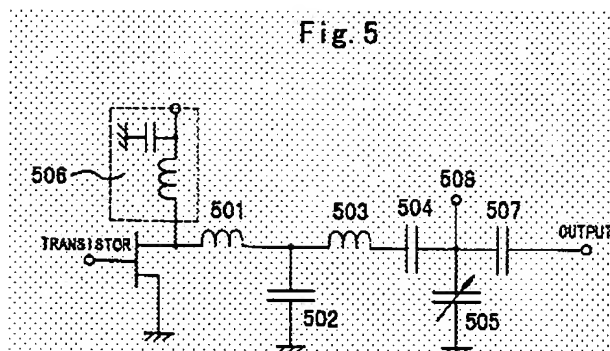
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2,4, 6, 8, 9,11-16, 18,19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi et al US Patent 6,130,589.

Yamaguchi et al disclose in figure 5, an impedance matching circuit of an amplifier comprising of a transistor, drain bias circuit comprising an inductor and capacitor, two series inductors 501 and 503, a capacitor 502 connected to ground, a

Art Unit: 2817

series capacitor 504, a variable capacitor 505 and DC blocking capacitor 507. Inductors 501 and 503, capacitors 502, 504 and 507 provide fixed impedance, while variable capacitor 505 provides variable impedance. The variable capacitor is composed of  $Ba_xSr_{1-x}$ , a ferroelectric material, therefore variable 505 is a ferroelectric variable capacitor (varactor). Inherently, transmission lines will be disposed between the capacitors and inductors. The input node receives a RF signal Yamaguchi et al state that "by using a capacitor having a capacitance that is bias voltage dependent in an impedance matching circuit, with an increase in output power, that is, with an increase in the voltage that is applied to the matching circuit capacitor, it is possible to vary the matching condition. By doing this, as the output power increases, it is possible to have the matching condition change from emphasis on output power to emphasis on distortion compensation." The method steps to the above-disclosed apparatus are inherent.



### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2817

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

To the best of examiners understanding, claims 3, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al US Patent 6,130,589 in view of Wikborg et al US Patent 6,563,153

See the above rejection of claims 1, 8 and 15 for details of Yamaguchi et al reference.

Thus, Yamaguchi et al is shown to teach all the limitations of the claims with the variable capacitor (varactor) including a plurality of stacked ferroelectric layers.

Wikborg et al disclose in figure 6, a varactor device 30 comprising of a substrate 1B, ferroelectric layer 12B which comprises of three ferroelectric layer 2B, 4B and 6B, electrodes 9B<sub>1</sub> and 9B<sub>2</sub> and thin buffer layers 8B<sub>1</sub> and 8B<sub>2</sub> (Column 2; line 37 Column 10; lines 7 –36)

One of ordinary skill in the art would have found to obvious to replace the general variable capacitor 504 of Yamaguchi et al with the stacked ferroelectric varactor as taught by Wikborg et al. The motivation for this modification would have been to provide a capacitor having large range of tunability.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al US Patent 6,130,589 in view of Masumiya et al US Patent 6,628,503

See the above rejection of claims 1, 8 and 15 for details of Yamaguchi et al reference.

Thus, Yamaguchi et al is shown to teach all the limitations of the claims with the exception of the shunt capacitor being a chip capacitor.

Masumiya et al disclose in figure 1, a chip capacitor comprising of dielectric layers 2, internal electrodes layers 3 and external electrodes 4. (Column 3; line 66 through column 4; line 9)

One of ordinary skill in the art would have found to obvious to replace the general capacitor 502 of Yamaguchi et al with the chip capacitor as taught by Masumiya et al. The motivation for this modification would have been to provide a capacitor that has a reduction in the dielectric loss and superior capacity temperature characteristics.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al US Patent 6,130,589 in view of Shiolen US Patent 4,499,524

See the above rejection of claims 1, 8 and 15 for details of Yamaguchi et al reference.

Thus, Yamaguchi et al is shown to teach all the limitations of the claims with the exception of the shunt capacitor being a surface mounted technology capacitor.

Shiolen disclose in figures 1-5, a high value surface mounted capacitor.

One of ordinary skill in the art would have found to obvious to replace the general capacitor 502 of Yamaguchi et al with the surface mounted capacitor as taught by Shiolen. The motivation for this modification would have been to provide a capacitor that more rugged than prior art capacitors and has a longer useful life.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Koscica et al US Patent 5,640,042 and Robinson US Patent 3,764,932.

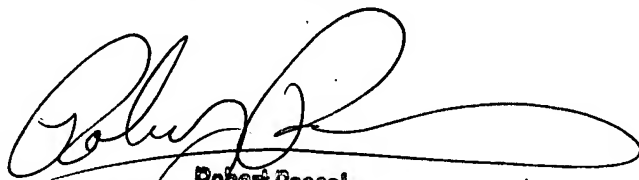
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E. Glenn whose telephone number is (571)-272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly E Glenn  
Examiner  
Art Unit 2817

keg



Robert Pascal  
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